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REMARKS

This Amendment is responsive to the Office Action identified above, and is responsive in any other manner indicated below.

NON-ENTRY OF INFORMATION DISCLOSURE STATEMENT - TRAVERSED

Applicant's previously-submitted Information Disclosure Statement has been refused entry, apparently on a basis that Applicant utilized a listing/format other than a Form PTO/SB/08A or PTO-1449 to list references. **Strong traversal is appropriate as there is no basis for denying entry.** More particularly, MPEP §609 states, "Applicants are **encouraged** to use the USPTO forms when preparing an information disclosure statement." The term "encouraged" does **not mean** "**mandatory**," and there is **no authorization within the MPEP or elsewhere for denying entry** when a different (*i.e.*, non-PTO/SB/08A or PTO-1449) type of listing/format is used. For convenience, submitted herewith is a Form PTO-1449 Equivalent listing the references, and Applicant respectfully requests return of an Examiner-initialed copy indicating that the information (*i.e.*, references) listed thereon has been considered. Applicant respectfully thanks the Examiner in advance for such initialing/consideration.

PENDING CLAIMS

Claims 1-12 were pending, under consideration and subjected to examination in the Office Action. Appropriate claims have been amended, canceled and/or added (without prejudice or disclaimer) in order to adjust a clarity and/or focus of

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Applicant's claimed invention. That is, such changes are unrelated to any prior art, scope adjustment or rejection, and are simply refocused claims in which Applicant is presently interested. Disputed claims (e.g., Claims 11 and 12) may be pursued within a continuing application. At entry of this paper, Claims 1-10 and 13-16 are pending for consideration and examination in the application.

ALLOWED CLAIMS

Claim 3 has been allowed in the application, as indicated within the section number "8" on page 6 of the Office Action. Applicant and the undersigned respectfully thank the Examiner for such indication of allowable subject matter.

REWRITTEN ALLOWABLE CLAIMS

Claims 4 and 6 have been indicated as being allowable if rewritten as indicated within the section number "8" on page 6 of the Office Action, and at least appropriate base ones of such claims have been so rewritten. Applicant and the undersigned respectfully thank the Examiner for such indication of allowable subject matter.

ALL REJECTIONS UNDER 35 USC §§102 AND 103 - TRAVERSED

All 35 USC rejections (*i.e.*, the 35 USC §102 rejection of Claim 2 as being anticipated by Den *et al.* (US 2003/0001274 A1); the §102 rejection of Claim 2 as being anticipated by Tuominen *et al.* (US 2002/0158342 A1); the 35 USC §103 rejection of Claims 5 and 7 as being unpatentable over Tuominen *et al.*; and the

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§103 rejection of Claims 1 and 8-10 as being unpatentable over Tuominen *et al.* in view of Dietzel *et al.* (US 6,665,258 B1)) are respectfully traversed. With regard to the rejections of Claims 2, 5 and 7, such rejections have been rendered obsolete by such present clarifying amendments of Applicant's claims to depend from independent Claim 1, and accordingly, traversal arguments are not appropriate at this time. However, Applicant respectfully submits that the following arguments regarding independent Claims 1 and 8-10, and claims dependent therefrom, preclude renewal of any such rejections against Applicant's clarified claims.

All descriptions of Applicants disclosed and claimed invention, and all descriptions and rebuttal arguments regarding the applied prior art, as previously submitted by Applicant in any form, are repeated and incorporated herein by reference. Further, all Office Action statements regarding the prior art rejections are respectfully traversed.

The requirements to support a rejection under 35 USC §102, as indicated in the decision of *In re Robertson*, 49 USPQ2d 1949 (Fed. Cir. 1999), require that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. Moreover, the Court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

Further, as set out in the decision *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988), the Court points out that the PTO has the burden under §103 to establish a *prima facie* case of obviousness, and can satisfy this burden only by showing some

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objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Such requirements have been clarified in the recent decision in *In re Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002), wherein the Court, in reversing an obviousness rejection, indicated that deficiencies of the cited reference cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge."

Therefore, in order to properly support a §102 anticipation-type rejection, the reference must teach the specific limitations of the claimed invention. In order to properly support a §103 obviousness-type rejection, the reference not only must suggest the claimed features, but also must contain the motivation for modifying the art to arrive at an approximation of the claimed features. However, the cited art does not adequately support either a §102 anticipation-type rejection or a §103 obviousness-type rejection because it does not, at minimum, disclose (or suggest) the following discussed limitations of Applicant's claimed invention.

Applicant's disclosed and claimed invention is directed toward providing arrangements (e.g., apparatus, methods, etc.) providing large memory capacity, a super fast transfer rate, the merits of hard disk arrangements, and which utilize nanostructures for low power consumption and semiconductor memory merits. In order to accomplish the same, Applicant's disclosed and claimed invention includes memory arrangements where respective multilayered nanostructures (i.e., within a memory array) are associated with a predetermined differing respective one of said cantilevers, whereby information is written or read by a current supplied from that one of said conductive chips which is associated with a desired one of said

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nanostructures as that conductive chip is put in contact with said desired nanostructure. The multilayered nanostructures each have a first magnetic layer, a nonmagnetic metal layer or a nonmagnetic insulating layer and a second magnetic layer laminated in that order on a conductive electrode layer formed on a substrate, and are laid out apart from one another at substantially even pitches.

In terms of distinguishing claim limitations, independent Claim 1, for example, recites, "a patterned magnetic recording medium in which multilayered nanostructures each having a first magnetic layer, a nonmagnetic metal layer or a nonmagnetic insulating layer and a second magnetic layer laminated in that order on a conductive electrode layer formed on a substrate are laid out apart from one another at substantially even pitches; and a cantilever array in which cantilevers having conductive chips at distal ends are laid out in an array and apart from one another in such a way as to be associated with said nanostructures, whereby information is written or read by a current supplied from that one of said conductive chips which is associated with a desired one of said nanostructures as that conductive chip is put in contact with said desired nanostructure." Added claims, e.g., Claim 13, further recite "wherein a number of said multilayered nanostructures substantially equals a number of said cantilevers having the conductive chips at the distal ends thereof, wherein each respective one of said multilayered nanostructures is associated with a predetermined differing respective one of said cantilevers". That is, there is substantially one-to-one correspondence between a nanostructure and one of the cantilevers.

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Claims dependent from Claim 1 have the above-recited features/limitations by dependency. Other independent Claims 8-10, and claims dependent therefrom, have similar or analogous features/limitations.

Turning now to rebuttal of ones of the applied references, Tuominen *et al.* appears directed to generic nanofabrication teachings. Tuominen *et al.* falls as a reference in that Tuominen *et al.* appears not to teach a patterned magnetic recording medium array, or a cantilever arrangement where cantilevers substantially match the recording medium array. More particularly, while Tuominen *et al.* generically mentions (Paragraphs 0116-0121) use of the nanostructures in memory arrangements, Tuominen *et al.* appears not to even mention putting the respective nanostructures in an array and appears not to mention any cantilever arrangement. Instead, Tuominen *et al.*'s examples (including FIG. 10 discussed with the Tuominen *et al.* memory discussions) show masses of multiple nanostructures all commonly connected to wide electrodes. In short, Tuominen *et al.*'s disclosure appears too generic in its discussions, and/or, appears to teach away from Applicant's invention.

Dietzel *et al.* is directed toward arrangements for recording, storing and reproducing information. Dietzel *et al.* is deficient, in that Dietzel *et al.* does not teach multilayered nanostructures having a first magnetic layer, a nonmagnetic metal layer or a nonmagnetic insulating layer and a second magnetic layer laminated in that order on a conductive electrode layer.

Regarding any combination of Tuominen *et al.* and Dietzel *et al.* teachings, it is respectfully submitted that combination thereof also would not disclose or suggest Applicant's disclosed and claimed invention. It is well settled under U.S. patent law

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that in order properly to support a '103 obviousness-type rejection, the applied reference(s) (i.e., without the teachings supplied by Applicant's disclosure) must provide suggestion or incentive to combine the same in a manner to arrive at the subject matter of the rejected claim(s). It is respectfully submitted that no such suggestion or incentive is provided by the applied reference(s).

More particularly, it is respectfully submitted that Tuominen *et al.*'s use of wide electrodes (to service masses of commonly-connected multiple nanostructures) would conflict with Dietzel *et al.*'s use of cantilevers, and *vice versa*, i.e., to substitute one for the other would negate or destroy use of the other. That is, it is well settled under U.S. patent law that references do not properly provide suggestion or incentive to combine the same in a §103 obviousness-type manner when the basic operation of an arrangement within one of the references would be completely destroyed upon combination.

Further, it is respectfully submitted that because Dietzel *et al.*'s cantilevers are arranged and operate differently from Applicant's disclosed and claimed invention, even if the teachings of Tuoninen *et al.* were combined with teachings of Dietzel *et al.*, such still would not have disclosed or suggested Applicant's invention. More particularly, Dietzel *et al.*'s FIG. 7 arrangement of plural cantilevers scans (*i.e.*, moves) over Dietzel *et al.*'s storage medium such that Dietzel *et al.*'s cantilevers service multiple surface areas. That is, as Dietzel *et al.* states at Column 5, line 47, "A probe transducer 8 scans over a storage medium 10...."

Thus, a Tuominen *et al.*/Dietzel *et al.* combination would not have met (*i.e.*, disclosed or suggested) Applicant's feature/limitations of "a cantilever array in which

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cantilevers having conductive chips at distal ends are laid out in an array and apart from one another in such a way as to be associated with said nanostructures,
whereby information is written or read by a current supplied from that one of said conductive chips which is associated with a desired one of said nanostructures as that conductive chip is put in contact with said desired nanostructure."

In addition to the above, none of Tuominen *et al.* or Dietzel *et al.* or a Tuominen *et al.*/Dietzel *et al.* combination would have disclosed or suggested the feature/limitations of Claims 13-16, "wherein a number of said multilayered nanostructures substantially equals a number of said cantilevers having the conductive chips at the distal ends thereof, wherein each respective one of said multilayered nanostructures is associated with a predetermined differing respective one of said cantilevers." That is, there is substantially one-to-one correspondence between a nanostructure and one of the cantilevers.

None of the other applied references would have cured the deficiencies mention above with respect to the Tuominen *et al.* and Dietzel *et al.* references.

In addition to the foregoing, the following additional remarks from Applicant's foreign representative are also submitted in support of traversal of the rejection and patentability of Applicant's claims.

The present invention with respect to independent Claim 1 features a magnetic memory apparatus comprising a patterned magnetic recording medium having multilayered nanostructures and a cantilever array having conductive chips, whereby an information is written or read by a current supplied from that one of the

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conductive chips which is associated with a desired one of the nanostructures as that conductive chip is put in contact with the desired nanostructure.

Important features/limitation of the present invention reside in that there is a reciprocal action between the patterned magnetic recording medium having multilayered nanostructure...and a cantilever array having conductive chips in accordance with the combination.

Namely, according to the present invention, the information is stored into the desired nanostructure by the current supplied from one of the conductive chips, whereby a magnetic direction of the nanostructure is turned over, without supplying with a magnetic field or a thermal means.

Accordingly, the present invention would not be taught or suggested by Tuominen *et al.* and Dietzel *et al.*

Tuominen *et al.* discloses a patterned magnetic recording medium having multilayered nanostructures, but lacks features/limitations of the present invention such as the patterned magnetic recording medium and the cantilever array having conductive chips by which an information is written or read when a current is supplied from that one of the conductive chips which is associated with a desired one of the nanostructures as that conductive chip is put in contact with the desired nanostructure.

Dietzel *et al.* discloses a cantilever array for detecting physical quantities on a nanometer scale, but lacks features/limitations of the present invention such as that the patterned magnetic recording medium has the multilayered nanostructures as described according to Claim 1. Namely, the multilayered nanostructures each have

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a first magnetic layer, a nonmagnetic metal layer or a nonmagnetic insulating layer and a second magnetic layer laminated in that order on a conductive electrode layer formed on a substrate are laid out apart from one another at substantially even pitches.

Furthermore, independent Claims 8-10 have respectively a reciprocal action between the patterned magnetic recording medium having multilayered nanostructures... and a cantilever array having conductive chips in accordance with these combinations. Namely, according to the present invention, the information is stored into the desired nanostructure by the current supplied from one of the conductive chips, whereby a magnetic direction of the nanostructure is turned over, without supplying with a magnetic field or a thermal means.

Accordingly, the present invention of Claims 8-10 also is not taught or suggested by Tuominen *et al.* and Dietzel *et al.*

As a result of all of the foregoing, it is respectfully submitted that the applied art would not support either a §102 anticipation-type rejection or a §103 obviousness-type rejection of Applicant's claims. Accordingly, reconsideration and withdrawal of such §§102 and 103 rejections, and express written allowance of all of the rejected claims, are respectfully requested.

RESERVATION OF RIGHTS

It is respectfully submitted that any and all claim amendments and/or cancellations submitted within this paper and throughout prosecution of the present application are without prejudice or disclaimer of any scope or subject matter.

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Further, Applicant respectfully reserves all rights to file subsequent related application(s) (including reissue applications) directed to any/all previously claimed limitations/features which have been subsequently amended or cancelled, or to any/all limitations/features not yet claimed, *i.e.*, Applicant continues (indefinitely) to maintain no intention or desire to dedicate or surrender any limitations/features of subject matter of the present application to the public.

EXAMINER INVITED TO TELEPHONE

The Examiner is invited to telephone the undersigned at the local D.C. area number 703-312-6600, to discuss an Examiner's Amendment or other suggested action for accelerating prosecution and moving the present application to allowance.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims listed above as presently being under consideration in the application are in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

A Petition for an appropriate extension of the shortened statutory period for response set by the 22 September 2004 Office Action (22 January 2005 being a Saturday) is being submitted herewith. To whatever other extent is actually required, Applicant respectfully petitions the Commissioner for an extension of time under 37 CFR §1.136. A Form PTO-2038 also accompanies this paper and authorizes payment of the requisite Petition fee. No additional claim fees are required for entry

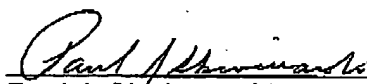
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of this paper. Please charge any actual deficiency in required fees to ATS&K

Deposit Account No. 01-2135 (as Case No. 520.43160X00).

Respectfully submitted,



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Attachments:

Petition for Extension of Time
PTO-1449
PTO-2038 (Fee Code 1251)